THE INVENTION CLAIMED IS.

1. A fabrication system comprising:

a process chamber;

a heating and cooling chamber including:

a heating mechanism adapted to heat a substrate positioned proximate the heating mechanism;

a coolable member spaced from the heating mechanism and adapted to cool a substrate positioned proximate the coolable member, the coolable member being coolable by a cooling mechanism; and

a transfer mechanism adapted to transfer a substrate between a position proximate the heating mechanism and a position proximate the coolable member; and

a substrate handler adapted to transfer a substrate between the process chamber and the heating and cooling chamber.

2. The system of claim 1 wherein the process chamber is adapted to deposit a copper film.

3. The system of claim 2 wherein the heating and cooling chamber is adapted to perform a copper anneal process.

4. The system of claim 1 wherein the heating and cooling chamber is adapted to perform a copper anneal process.

5. The system of claim 1 wherein the heating mechanism comprises a heated substrate support.

6. The system of claim 5 wherein the heated substrate support is adapted to support a substrate and to heat the supported substrate to a predetermined temperature.

7. The system of claim 1 wherein the heating mechanism and the coolable member are separated by about 1 to 5 inches.

8. The system of claim 1 wherein the coolable member comprises a cooling plate.

9. The system of claim 8 wherein the cooling plate comprises a cooling plate selected from the group consisting of a water cooled cooling plate and a refrigerant cooled cooling plate.

10. The system of claim 8 wherein the cooling plate comprises a plurality of holes adapted to allow a gas to flow through the cooling plate so as to cool the gas.

11. The system of claim 8 wherein the cooling plate may be cooled to between about 5 and 25 °C.

12. The system of claim 1 wherein the transfer mechanism comprises a plurality of wafer lift pins.

13. The system of claim 1 wherein the transfer mechanism is adapted to transfer a substrate positioned proximate the heating mechanism to a position of less than about 0.02 inches from the coolable member.

14. The system of claim 1 further comprising a dry gas source coupled to the heating and cooling chamber and adapted to supply a dry gas thereto.

15. The system of claim 14 wherein the dry gas comprises a dry gas selected from the group consisting of approximately 100% N_2 and approximately 96% or greater N_2 with 4% or less H_2, both having less than about 5 parts per million of O_2.

16. The system of claim 14 wherein the coolable member comprises a plurality of holes adapted to allow a gas to flow through the coolable member so as to cool the gas and wherein the dry gas source is coupled to the coolable member and is adapted to supply a dry gas that flows through the plurality of holes of the coolable member.

17. The system of claim 14 further comprising a manifold having a plurality of holes adapted to allow a gas to flow through the manifold so as to diffuse the gas and wherein the dry gas source is coupled to the manifold and is adapted to supply a dry gas that flows through the manifold.

18. The system of claim 1 further comprising a pump coupled to the heating and cooling chamber and adapted to evacuate the heating and cooling chamber to a predetermined pressure.

19. The system of claim 18 having a controller coupled thereto, the controller being programmed to cause the pump to evacuate the heating and cooling chamber to a predetermined pressure during cooling of a substrate with the coolable member.

20. The system of claim 19 wherein the predetermined pressure is between about 20 and 200 Torr.

21. The system of claim 1 wherein the transfer mechanism is adapted to transfer a substrate between a position proximate the heating mechanism and a position proximate the coolable member by employing single-axis, linear motion.

22. A fabrication system comprising:

a process chamber adapted to perform a deposition process on a substrate;

a heating and cooling chamber adapted to perform a copper anneal process on a substrate processed within the process chamber, the heating and cooling chamber including:

a heating mechanism adapted to heat a substrate positioned proximate the heating mechanism;

a coolable member spaced from the heating mechanism and adapted to cool a substrate positioned proximate the coolable member, the coolable member being coolable by a cooling mechanism; and

a transfer mechanism adapted to transfer a substrate between a position proximate the heating mechanism and a position proximate the coolable member; and

a substrate handler adapted to transfer a substrate between the process chamber and the heating and cooling chamber.

23. The system of claim 22 wherein the process chamber is adapted to deposit a copper film.

24. A method comprising:

(a) providing a fabrication system having:

a process chamber;

a heating and cooling chamber including:

a heating mechanism adapted to heat a substrate positioned proximate the heating mechanism;

a coolable member spaced from the heating mechanism and adapted to cool a substrate positioned proximate the coolable member, the coolable member being coolable by a cooling mechanism; and

a transfer mechanism adapted to transfer a substrate between a position proximate the heating mechanism and a position proximate the coolable member; and

a substrate handler adapted to transfer a substrate between the process chamber and the heating and cooling chamber;

(b) processing a substrate within the process chamber;

(c) transferring the substrate from the process chamber to the heating and cooling chamber; and

(d) annealing the substrate within the heating and cooling chamber.

25. The method of claim 24 wherein step (d) comprises performing a copper anneal process.

26. The method of claim 25 further comprising cooling the substrate within the heating and cooling chamber.

27. A method comprising:

(a) providing a fabrication system having:

a process chamber adapted to perform a deposition process on a substrate;

a heating and cooling chamber including:

a heating mechanism adapted to heat a substrate positioned proximate the heating mechanism;

a coolable member spaced from the heating mechanism and adapted to cool a substrate positioned proximate the coolable member, the coolable member being coolable by a cooling mechanism; and

a transfer mechanism adapted to transfer a substrate between a position proximate the heating mechanism and a position proximate the coolable member; and

a substrate handler adapted to transfer a substrate between the process chamber and the heating and cooling chamber;

(b) performing a deposition process on a substrate within the process chamber;

(c) transferring the substrate from the process chamber to the heating and cooling chamber; and

(d) performing a copper annealing process on the substrate within heating and cooling chamber.

20. The method of claim 27 wherein step (b) comprises performing a copper deposition process on the substrate

29. The method of claim 27 further comprising cooling the substrate within the heating and cooling chamber.

30. A method of heating and cooling a substrate comprising:

(a) providing a fabrication system having:

a process chamber;

a heating and cooling chamber including:

a heating mechanism adapted to heat a substrate positioned proximate the heating mechanism;

a coolable member spaced from the heating mechanism and adapted to cool a substrate positioned

proximate the coolable member, the coolable member being coolable by a cooling mechanism; and

a transfer mechanism adapted to transfer a substrate between a position proximate the heating mechanism and a position proximate the coolable member; and

a substrate handler adapted to transfer a substrate between the process chamber and the heating and cooling chamber;

(b) processing the substrate within the process chamber;

(c) transferring the substrate from the process chamber to the heating and cooling chamber;

(d) positioning the substrate at a position proximate the heating mechanism;

(e) heating the substrate with the heating mechanism;

(f) transferring the substrate from the position proximate the heating mechanism to a position proximate the coolable member; and

(g) cooling the substrate with the coolable member.

31. The method of claim 30 wherein step (b) comprises performing a copper deposition process.

32. The method of claim 30 wherein one or more of steps (d)-(g) comprise performing a copper anneal process.

33. The method of claim 30 wherein positioning the substrate proximate the heating mechanism comprises placing the substrate on a heated substrate support.

34. The method of claim 30 wherein transferring the substrate from a position proximate the heating mechanism to a position proximate the coolable member comprises transferring the substrate from a position proximate the heating mechanism to a position proximate a cooling plate.

35. The method of claim 30 wherein transferring the substrate from a position proximate the heating mechanism to a position proximate the coolable member comprises transferring the substrate from a position proximate the heating mechanism to a position less than about 0.02 inches from the coolable member.

36. The method of claim 30 wherein cooling the substrate with the coolable member comprises cooling the substrate with the coolable member having a temperature between about 5 and 25 °C.

37. The method of claim 30 further comprising flowing a dry gas into the heating and cooling chamber during at least one of heating and cooling the substrate.

38. The method of claim 30 further comprising flowing a dry gas through a plurality of holes within the coolable member during cooling the substrate.

39. The method of claim 30 further comprising evacuating the chamber to a predetermined pressure during cooling the substrate.

40. The method of claim 39 wherein evacuating the chamber to a predetermined pressure during cooling the

substrate comprises evacuating the chamber to between about 20 and 200 Torr during cooling the substrate.

41. The method of claim 30 wherein heating the substrate with the heating mechanism comprises annealing the substrate.

42. The method of claim 30 wherein heating the substrate with the heating mechanism comprises degassing the substrate.

43. The method of claim 30 wherein transferring the substrate from the position proximate the heating mechanism to the position proximate the coolable member comprises transferring the substrate by employing single-axis, linear motion.